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ABSTRACT

Prepared for use with Research for Better Schools' career education programs, this guide is designed to assist in the selection of instruments which measure program goals. The guide provides descriptions of ten instruments: (1) student demographic data questionnaire, (2) career maturity inventory, (3) assessment of career development, (4) self-directed interest inventory, (5) assessment of student attitudes toward learning environments, (6) student attitude survey, (7) comprehensive tests of basic skills, (8) student opinion survey, (9) parent opinion survey, and (10) community participant opinion survey. Each instrument is described in terms of its rationale and objectives, content and organization, general administration procedures, scoring procedures, scoring interpretation and use, psychometric qualities, and availability. The final section presents the intercorrelations among each of the instruments. (LRA)

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RBS CAREER EDUCATION
INSTRUMENT SERVICE GUIDE

by

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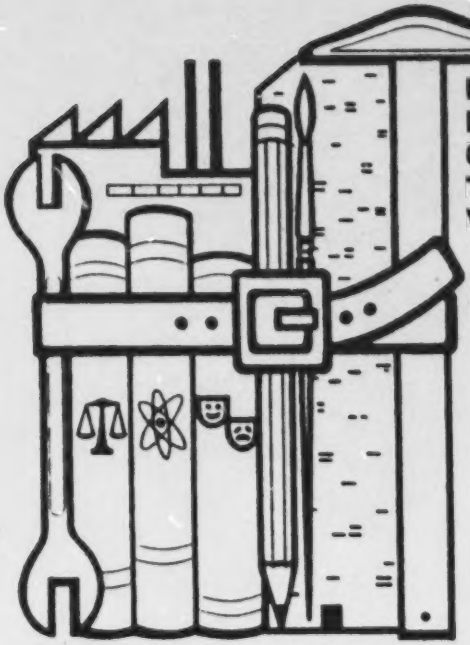

RBS Career Education

INSTRUMENT SERVICE GUIDE

RESEARCH FOR BETTER SCHOOLS, INC. (RBS), is a private, non-profit educational research laboratory located in Philadelphia, Pennsylvania. The INSTRUMENT SERVICE GUIDE is part of a series of curriculum and procedural materials developed by the RBS CAREER EDUCATION PROGRAM (Michaelita B. Quinn, Director) for a pilot project in experience-based career education (EBCE). Additional materials in the evaluation series include:

EVALUATION PLANNING MANUAL

ANALYSIS SERVICE GUIDE

PROGRAM MONITORING MANUAL

RBS CAREER EDUCATION: INSTRUMENT SERVICE GUIDE was prepared by Thomas Biester

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INTRODUCTION

Evaluation has been a continuing activity in the development of RBS Career Education. Evaluation findings have provided a useful source of information in both refining the program and in demonstrating evidence of program effectiveness to participants, sponsors, potential adopters and other members of the educational community.

Since RBS Career Education has become available for adoption by public school districts, a series of materials and services has been prepared to assist adopters in its planning, implementation and evaluation. This series includes:

Materials		Services
Evaluation Planning Manual	–	Evaluation Technical Assistance
Instrument Service Guide	–	Instrument and Scoring Service
Analysis Service Guide	–	Analysis Service
Program Monitoring Manual	–	Evaluation Technical Assistance

The materials assist in evaluation planning and design, while the services offer Research for Better Schools' evaluation systems and expertise to support implementation. Materials and services available from Research for Better Schools are described more completely in the *RBS Evaluation Package Overview.*

The *RBS Instrument Service Guide* provides information about selecting program evaluation instruments. The selection of instruments which reasonably can be expected to measure the hypothesized program effects is a critical step in evaluation studies. For each hypothesis at least one measure must be selected to represent the intended outcome. Thus, the selection of instruments must be tailored to the particular goals of the program being evaluated.

The RBS Career Education Program includes three general areas of student outcomes. These areas are (1) Career Skills, (2) Life or Self Skills and (3) Basic Academic Skills. Program implementers also need basic demographic information about students who are participating in the Career Education Program or serving as control group counterparts. Additionally, participant opinions can provide valuable feedback on perceived effectiveness of program elements. A series of instruments that measure the impact of programs similar to RBS Career Education is available.

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Instruments selected or constructed for each area of measurement are listed below.

- Career Skills
  - Career Maturity Inventory
  - Assessment of Career Development
  - Student Attitude Survey (Career Attitude Scale)
  - Self-Directed Interest Inventory
- Life or Self Skills
  - Assessment of Student Attitudes Toward Learning Environments
  - Student Attitude Survey (Acceptance of Self Scale)
  - Student Attitude Survey (Acceptance of Others Scale)
- Basic Academic Skills
  - Comprehensive Tests of Basic Skills (Reading Comprehension Test, Arithmetic Concepts Test, Arithmetic Applications Test)
- Student Demographic Characteristics
  - Student Demographic Data Questionnaire
- Participant Opinion
  - Student Opinion Survey
  - Parent Opinion Survey
  - Community Participant Opinion Survey

The *RBS Instrument Service Guide* describes each of the above instruments in terms of its rationale and objectives, content and organization, general administration procedures, scoring procedures, scoring interpretation and use, psychometric qualities and availability. The intercorrelations among instruments are also presented. Instruments, directions for test administrators, technical assistance and scoring services are available from Research for Better Schools.

INSTRUMENTS

This section outlines the essential features of each instrument included in the RBS Career Education Evaluation Package. These instruments are:

A. Student Demographic Data Questionnaire
B. Career Maturity Inventory
C. Assessment of Career Development
D. Self-Directed Interest Inventory
E. Assessment of Student Attitudes Toward Learning Environments
F. Student Attitude Survey
G. Comprehensive Tests of Basic Skills
H. Student Opinion Survey
I. Parent Opinion Survey
J. Community Participant Opinion Survey

A. STUDENT DEMOGRAPHIC DATA QUESTIONNAIRE (SDQ)

1. *Rationale/Objectives of the Instrument:* This form was designed to collect information on background and demographic characteristics of secondary school students and their parents and on the students' career plans.

2. *Content and Organization:* The SDQ is presented on a two-sided optical scanning form. Items include name, address, telephone number, birthdate, sex, ethnic group, grade level, school attendance, school GPA, reasons for applying to the career education program, parental occupation and student educational and occupational plans.

3. *Administration Procedures:* The instrument is amenable to individual or group administration. Students should be given general instructions for completing optical scanning forms and be directed to complete all items. Time for completion is approximately 15 minutes. Comparison group students can omit the item on reasons for applying to the career education program. The SDQ should be administered to each student during each year of program participation to update background information.

4. *Scoring Procedures:* Individual item scores are discrete. Occupational and educational scales can be combined to form a socioeconomic status estimate.

5. *Scoring Interpretation and Use:* Responses are used for descriptive purposes and demographic input analysis. On an individual student basis, they provide background data useful in producing student profiles. The data can be combined across students to describe student groups by categorically interpreting items by frequency and percentage. Results of group analyses have implications for the data analysis plan. For example, one can determine the extent to which experimental and control groups are matched according to demographic variables or whether a posttest group is representative of the initial student sample.

6. *Psychometric Qualities:* Content validity (in terms of usefulness) has been established during a three-year evaluation effort by RBS and others. Reliability has not been formally determined.

7. *Availability: The Student Demographic Data Questionnaire* and processing services are available from Research for Better Schools, Inc.

B. CAREER MATURITY INVENTORY (CMI) – COMPETENCE TEST

1. *Rationale/Objectives of the Instrument:* This instrument was designed by John Crites to measure a set of cognitive competencies which reflect the author's concept of career decision-making. These competencies are: Self-Appraisal, Occupational Information, Goal Selection, Planning and Problem Solving. Critical reviews by RBS project staff and assessments by other researchers suggest that two subtests are most appropriate for assessing the effects of career education programs similar to RBS'. They are "Part 2: Knowing About Jobs" (Occupational Information) and "Part 4: Looking Ahead" (Career Planning). Information on the other subscales can be obtained from the *CMI Theory and Research Handbook.*

2. *Content and Organization:* All subtests are included in the CMI booklet; separate optical-scanning answer sheets are available. Items were written at a sixth grade reading level and should be appropriate for all secondary school students. There are 20 multiple choice items in each subtest. The Occupational Information subtest assesses students' knowledge of the world of work. Vignettes of workers at their jobs, based on worker trait requirements given in the *Dictionary of Occupational Titles,* constitute the stems for items. The task is to choose which occupational title matches the job description. The Planning subtest assesses students' ability to plan the achievement of career goals. The item stems provide career goals of hypothetical individuals and sets of unordered steps to their attainment. The task is to choose which sequence constitutes the correct order of steps.

3. *Administration Procedures:* The instrument can be administered to groups as well as to individuals. The *CMI Administration and Use Manual* gives complete instructions for administering all subtests in a standardized format. There is a suggested time limit of 20 minutes per subtest. It is recommended that this time limit be adhered to if the results are to be used for program evaluation.

4. *Scoring Procedures:* The score for each subtest is the number of items correctly answered. There is no overall score for the CMI. The CMI can be

scored either by hand or machine. Keys and scoring stencils for hand scoring are available from CTB/McGraw-Hill. Appropriate answer sheets can be machine scored by either RBS or CTB/McGraw-Hill.

5. *Scoring Interpretation and Use:* The higher the score on the CMI, the greater a student's knowledge in that area. Percentile norms by grade are presented in the *CMI Administration and Use Manual,* but since the norming sample was relatively small, the development of local norms is encouraged.

   The CMI Manual lists four potential uses of results: studying career development, assessing curricular and guidance needs, evaluating career education programs and career counseling. Group scores would be appropriate for the first three uses, while individual student data would be used for the last. For evaluating career education programs, pretest and posttest results should be compared to determine student gains. Also, a comparison with control group students is recommended.

6. *Psychometric Qualities:* Items were selected to discriminate between students of different grade levels. A significant monotonic linear trend was demonstrated for all items. Difficulty indices for many of the items in the Occupational Information subtest are very high, indicating the possibility of a ceiling effect for many students. Internal consistency coefficients of the Occupational Information and Planning subtests are high, ranging from .81 to .90. Thus, the subtests are composed of rather homogeneous sets of items. Minimal validity data is reported in the *CMI Theory and Research Handbook.* Reviews by RBS evaluators suggest that subtests 2 and 4 appear to possess content validity.

7. *Availability:* CMI test booklets, answers sheets and accessories are available through CTB/McGraw-Hill. Processing for Digitek answer sheets is available from RBS. Order forms and descriptive information can be obtained from RBS.

C. ASSESSMENT OF CAREER DEVELOPMENT (ACD)

1. *Rationale/Objectives of the Instrument:* This instrument was developed by the American College Testing Program. It focuses on three core components of career development: *occupational awareness* including occupational knowledge and exploratory occupational experiences; *self awarness* including job values and preferences, career plans, self-evaluation of career planning, and perceived needs for help with career planning; and *career planning and decision-making* including career planning knowledge and involvement in career planning experiences. The major purpose of the ACD is to provide counselors, administrators and evaluators with information to develop guidance programs and to assess the outcomes of career guidance programs.

2. *Content and Organization:* The instrument is presented in booklet format with separate optical-scanning answer sheets available. The mean reading grade level is 7.2; the test is recommended for grades 8 through 11. The ACD is arranged into six units (subtests), two covering career-related knowledge and four covering career-related activities. Provisions are made for including up to 19 locally constructed items. Unit 1, Job Knowledge and Unit 5, Career Planning Knowledge are recommended for assessing career education program effects. These two subtests measure students' knowledge of occupational duties, psychosocial aspects, worker attributes, preparation requirements, reality factors, the career planning process and basic career development principles. Item formats are varied.

3. *Administration Procedures:* The ACD is a group-administered test. Standardized administration procedures are given in the *Test Administrator's Manual of Instructions.* The *ACD Handbook* suggests two formats for administering the instrument. One format involves three 45 minute periods while the other involves one 125 minute period. The two career knowledge subtests (Units 1 and 5) require 30 and 20 minutes, respectively.

4. *Scoring Procedures:* The ACD must be scored through the Houghton Mifflin Scoring Service. However, it is possible to score the two career

knowledge subtests by hand using the key in the *ACD Handbook*. The Houghton Mifflin Scoring Service provides a Group Summary Report and a Student List Report. The former includes score distributions, means and standard deviations for 11 ACD scales and summaries of student responses to 42 specific items. The latter includes each individual student's score for the 11 scales and individual item responses to 19 questions.

5. *Scoring Interpretation and Use:* ACD results can be used to obtain an overview of student plans, needs, and feelings; to identify students for priority attention; to identify potential participants for special guidance experiences; and to assess students' knowledge about careers and career planning. Students' career knowledge can be interpreted in a norm-referenced or criterion-referenced sense. The *ACD Handbook* provides specific guidelines for the interpretation and use of results.

6. *Psychometric Qualities:* The ACD appears to have been carefully constructed through a three stage empirical tryout process. Item selection techniques included logical critiques by experts and item analysis data such as response distributions, difficulty indices and item-scale correlations. National norms were obtained on a sample of approximately 30,000 students. Validity data is reported in terms of content validity, scale interrelationships, relationships to other variables and studies of career guidance outcomes and growth. Reliability estimates for the various ACD subscales range from .61 to .93. The reliability of the "Knowledge of Occupational Preparation Requirements" subscale is fairly low (.61); caution should be applied in the interpretation of individual scores.

7. *Ordering Information:* ACD test booklets, answer sheets and accessories are available from the Houghton Mifflin Company.

D. SELF-DIRECTED INTEREST INVENTORY (SDII)

1. *Rationale/Objectives of the Instrument:* This instrument is an adaptation of the *Self-Directed Search** (SDS) developed by John Holland. The SDII is based on a theory of personality types and environmental models. The personal assessment and occupational classification systems use six major scales: Realistic, Investigative, Social, Conventional, Enterprising and Artistic. The SDII measures occupations considered, activities preferred, perceived competencies, occupations of interest and self-estimates of abilities. Primary differences between the SDII and the SDS are directions to students, format of presentation and availability of machine scoring. The SDII is used with permission of Consulting Psychologists Press.

2. *Content and Organization:* Three kinds of materials are required: an assessment booklet, an optical scanning response sheet and a classification booklet. There are five sections in the assessment booklet: Occupations Considered, Activities (six scales of eleven items each), Competencies (six scales of eleven items each), Occupations (six scales of fourteen items each), and Self Estimates (two sets of six ratings). In the first section students are asked to list those occupations which they have considered in their career planning. The Activities scales estimate how students spend their time and what their involvements are. The Competency scales require students to evaluate their competencies in a series of activities. On the Occupations scales students indicate preferences toward various occupations. The Self Estimate scales are self ratings of students' talents and traits. All scales included in the SDII correspond to the six categories in Holland's career development theory. The instrument is presented in an eight-page (8½ x 5½) booklet. An occupational classification booklet, *The Occupations Finder*, arranges 465 occupational titles according to the six personality types. Each occupational subclass is arranged according to the educational level required by the occupation. Most occupations are cross-referenced to the *Dictionary of Occupational Titles*.

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3. *Administration Procedures:* The SDII is amenable to individual or group administration. Students read the instructions listed on the inside cover of the booklet. If administered in a group setting, the test proctor can read the instructions aloud. Administration time is approximately 30 minutes. Students may omit the occupation code ID on the answer sheet.

4. *Scoring Procedures:* Processing is available from RBS. Scores are generated by summing preferences within each subscale and ranking the highest three scores. Thus, a three letter code which corresponds to the six occupational categories is derived for each section. A summary code is obtained as a weighted combination of all scales.

5. *Scoring Interpretation and Use:* The interpretation of the SDII is similar to the interpretation of other interest inventories. Summary codes indicate interests or preferences in relation to Holland's six categories. Results can be used on an individual or group basis. Individual profiles may be used in conjunction with *The Occupations Finder* for counseling purposes so that students can see which types of occupations match their interests and competencies. The SDII also can be used to direct students toward career exploration sequences which are meaningful to them. In addition, the SDII can define career maturity according to the congruency between students' summary codes and the occupations they are considering. In the context of group guidance, results can be used by constructing exercises that utilize the SDII as a starting point. For example, the SDII can be used to explore the relationships between occupations, activities, competencies, self-estimates and occupational clusters. Results also have implications for program planning, for instance, revising career exploration activities on the basis of SDII data. Further information on interpretation can be found in the *Counselor's Guide* and *Professional Manual of the Self-Directed Search* published by Consulting Psychologists Press.

6. *Psychometric Qualities:* The validity and reliability of the SDII are inferred from studies available on the SDS. Content validity has been demonstrated by consistency with well-established vocational concepts and theories. Studies have indicated low to moderate predictive validity

for variables such as non-academic achievement, vocational aspirations and self-ratings. Concurrent validity is demonstrated by correlations with instruments such as the *Kuder Preference Inventory*, the *Strong Vocational Interest Blank*, the *Bennet Mechanical Comprehension Test* and the *Minnesota Paper Form Board*. The scales have a moderate degree of internal consistency with Kuder-Richardson coefficients ranging from .53 to .88. Summary codes have a high degree of test-retest reliability (.81 to .92), although individual scales have somewhat lower coefficients.

7. *Availability:* The SDII, optical-scanning response sheets and processing services are available from RBS. *The Occupations Finder* and technical manuals are available from Consulting Psychologists Press.

E. ASSESSMENT OF STUDENT ATTITUDES TOWARD LEARNING ENVIRONMENTS (ASA)

1. *Rationale/Objectives of Instrument:* This instrument was designed to measure secondary school students' attitudes toward learning environments, both traditional and non-traditional.

2. *Content and Organization:* The 26-item instrument is presented on a one-sided optical scaning form. It includes four subscales and an overall score: Attitude Toward Education in General, Attitude Toward School Curriculum, Attitude Toward School Resources, Attitude Toward School Counseling and Overall Attitude Toward Learning Environments. Each item utilizes a five-point Likert scale with "Strongly Disagree" and "Strongly Agree" as poles.

3. *Administration Procedures:* This instrument can be administered in an individual or group setting. Students should receive instructions for completing optical scanning answer sheets and complete all appropriate identification information. The test administrator should then read the instructions printed on the instrument to the students and answer any questions that might arise. Administration time is approximately 15 minutes.

4. *Scoring Procedures:* Processing is available from RBS. Item responses are arranged by correct polarity weighted by appropriate scale value and summed for each subtest and for the total instrument.

5. *Scoring Interpretation and Use:* Scores are most easily interpreted as item means for each of the subtests and for the total test. Item means close to five indicate a very strong positive attitude, whereas item means close to one indicate a very strong negative attitude. Answer sheets should be scanned to determine the extent to which students choose response category "3" ("not sure"). If there is a high incidence of such responses, item means will tend to regress toward the midpoint. Subtest scores can be used to describe general satisfaction of program students with various elements, while comparisons with control group students can indicate areas of program effectiveness.

6. *Psychometric Qualities:* The ASA has demonstrated high reliability. The split-half coefficients for subscales range from .56 to .74 with an overall coefficient of .80. Item to subscale correlation coefficients range from .46 to .71 with an average correlation of .58. As an estimate of validity, subscale scores were compared with staff ratings and percent of agreement was calculated. Although interrater reliability was low, the extent of agreement ranged from 47 to 72 percent with an average of 56 percent, thus lending support to validity claims.

7. *Availability: The ASA* and processing services may be obtained from RBS. The instrument also is included as a subscale within the *Student Attitude Survey* published by RBS.

F. STUDENT ATTITUDE SURVEY (SAS)

1. *Rationale/Objectives of the Instrument:* This instrument is designed to measure secondary school students' attitudes toward school, work, self and others.

2. *Content and Organization:* The 80-item instrument is presented on a two-sided optical scanning form. It contains four separate sections including the various subscales described below.

   - Assessment of Student Attitudes Toward Learning Environments
     - education in general
     - school counseling
     - school curriculum
     - school resources
     - overall learning environments
   - Career Attitude Survey
     - career knowledge
     - career planning
   - Acceptance of Self Scale
   - Acceptance of Others Scale

   All items are presented in a five-point Likert format with "Strongly Disagree" and "Strongly Agree" as poles.

3. *Administration Procedures:* The instrument can be administered in an individual or a group setting. Students should receive instructions for completing optical scanning answer sheets and complete all appropriate identification information. The test administrator should then read the instructions printed on the instrument to the students and answer any questions that might arise. Administration time is approximately 30 minutes.

4. *Scoring Procedures:* Processing is available from RBS. Item responses are arranged by correct polarity, weighted by appropriate scale value and summed for each subscale.

5. *Scoring Interpretation and Use:* Scores are most easily interpreted as item means for each of the subscales and overall scales. Item means close to five indicate a very strong positive attitude, whereas item means close to one indicate a very strong negative attitude. Answer sheets should be scanned to determine the extent to which students choose response category "3" ("not sure"). If there is a high incidence of such responses, means will tend to regress toward the midpoint. Group subtest means can be used to describe general attitudes of program students, while comparisons with control group students can indicate areas of program effectiveness.

6. *Psychometric Qualities:* The SAS has demonstrated a high degree of internal consistency. The average item to total score correlations for the major scales were .48, .53, .57 and .50. The split-half reliability coefficients were .80, .90, .88 and .70. Two measures of validity were employed: agreement of staff and student ratings and scale sensitivity to experimental treatment effects. In the first case, despite low interrater reliability, the extent of agreement ranged from 47 to 72 percent with an average of 56 percent. The second index of validity indicated the instrument's ability to identify experimental students who had been exposed to a program designed to affect the variables which the instrument measures in six of seven cases.

7. *Availability:* The *Student Attitude Survey* and processing services may be obtained from RBS.

G. COMPREHENSIVE TESTS OF BASIC SKILLS (CTBS)

1. *Rationale/Objectives of the Instrument:* The *Comprehensive Tests of Basic Skills* are a series of test batteries produced in four overlapping levels with alternate forms (Q and R, S and T). The batteries at each level contain tests in four basic skills content areas: Reading, Language, Arithmetic and Study Skills. Science and Social Studies tests have been added to Forms S and T. The CTBS measures student development in four process areas (following Bloom's classification schema): recognition and/or classification, translation, interpretation and analysis. Three subtests have been chosen by the RBS evaluation staff for inclusion in the instrument package: Reading Comprehension, Arithmetic Concepts and Arithmetic Applications. Only Forms Q and R are discussed in this section since these have been used exclusively to date. Level 4 is usually appropriate for secondary-age students. Information on the other subtests can be found in the *CTBS Test Coordinators' Handbook.*

2. *Content and Organization:* All subtests are included in a booklet format. Separate answer sheets are available for the Reading and Arithmetic subtests. The tests are in multiple-choice form with four response options.

   The Reading Comprehension test contains 45 items which refer to reading passages presented in the form of articles, stories, letters, or poems. Items can be classified into the following process categories: paraphrasing ideas; identifying the main idea; perceiving relationships; drawing conclusions; making inferences; extending interpretation beyond stated information; and recognizing the author's intention.

   The Arithmetic Concepts test contains 30 items based on the number system, measurement, algebra, geometry, statistics and logic. The items can be classified into the following process categories: recognition and/or application of concepts and techniques; conversion of concepts into other forms; comprehension of the interrelationships of numerical concepts; and the organization of facts in complex problems.

   The Arithmetic Applications test contains 20 items with emphasis upon problem solving. The items address the following process categories:

comprehension of problems; selection of appropriate methods of solution; organization of facts in complex problems; and solution of problems.

3. *Administration Procedures:* The test should be administered in a group setting. The *CTBS Examiner's Manual* gives complete instructions for administering all tests in a standardized format. Time limits are as follows: Reading Comprehension test, 30 minutes; Arithmetic Concepts test, 15 minutes; Arithmetic Applications test, 14 minutes. Approximately 10 minutes will be required for giving instructions. The test administrator should make sure that students answer questions on the correct answer sheet for the appropriate test.

4. *Scoring Procedures:* The raw score for each test is the number of items answered correctly. Percentile scores, stanines, grade equivalents, or scale scores can be derived from conversion tables provided by CTB/McGraw-Hill. The CTBS can be scored either by hand or machine. Keys and scoring stencils for hand scoring are available from CTB/McGraw-Hill. Appropriate answer sheets can be machine scored either by CTB/McGraw-Hill or RBS.

5. *Scoring Interpretation and Use:* The higher the raw score on the CTBS, the greater a student's knowledge in the area. Grade equivalent scores are derived from the average raw score in a representative sample of all pupils in that grade level in American schools. Grade equivalents are easily interpretable in a descriptive sense but are not recommended for comparative analyses. Percentile scores indicate the percentage of students in a group who are below the given score. The reference group may be the nationwide sample reported in the CTBS manual or norms constructed on the local level. A single scale of standard scores for use with all levels and any form of the CTBS has been developed and reported by CTB/McGraw-Hill. This Expanded Standard Scale Score ranges from approximately 100 to 900 and is based on scores from the national standardization sample of ninth and tenth grade students. Standard scores are recommended for analyzing student growth and comparing groups of students. Tables to equate scores of all forms of the CTBS are available from CTB/McGraw-Hill.

Results of the CTBS may be used to indicate student growth in basic skills or to compare performances between program students and students in local control groups or in the national standardization sample. Scores can be analyzed for individuals or for groups of students.

6. *Psychometric Qualities:* A comprehensive description of the development of the CTBS is given in the *CTBS Technical Report.* Norms were established through tryouts with a large sample of students representative of the population of American secondary school students. Items were selected on the basis of difficulty, discrimination and reliability. The difficulty indices for items within each test ranged from .25 to .90 with a mean difficulty of approximately .60. All items demonstrated biserial correlation coefficients greater than .30. Reliability coefficients (KR-20) for the Level 4 Reading Comprehension test, Arithmetic Concepts test and the Arithmetic Applications test are .89, .86, and .84, respectively. Correlations between Forms Q and R (testing interval of six weeks) for the three subtests range from .76 to .84. Evidence of content and congruent validity is noted in the *CTBS Technical Report.*

7. *Availability:* CTBS test booklets, answer sheets and accessories can be obtained from CTB/McGraw-Hill. Processing for Digitek answer sheets is available from RBS.

H. STUDENT OPINION SURVEY (SOS)

1. *Rationale/Objectives of the Instrument:* This instrument is designed to measure student opinions concerning career education programs similar to RBS Career Education.

2. *Content and Organization:* The instrument contains 20 items incorporating a five-point interval scale and includes three open-ended items. The items assess attitudes toward various program elements, opinions on program benefits and comparisons of the program relative to standard curricular offerings. The instrument is presented in an eight-page (8½ x 5½) booklet.

3. *Administration Procedures:* The instrument can be administered to groups or to individuals. If confidentiality of responses is a concern, students may omit identification information on the first page. Administration time is approximately 15 minutes.

4. *Scoring Procedures:* The Student Opinion Survey must be scored by hand. Response category frequencies and percentages for individual items are most appropriate. Item means also may be helpful. An overall instrument score is not appropriate. Open-ended responses can be listed verbatim (eliminating personal references), and a categorization for summarizing and reporting responses can be devised.

5. *Scoring Interpretation and Use:* Item means close to five indicate a strong positive rating; a mean close to one indicates a strong negative rating. Frequency distributions of response categories as well as item means should be examined for further description of general student opinion. Rate of response should be considered to determine the generalizability of results. Feedback from the SOS can assist in future program planning efforts.

6. *Psychometric Qualities:* Psychometric analyses of previous versions of the SOS indicate a high degree of internal consistency (KR-20 of .99) and homogeneity of factors. Based on these analyses several items have been deleted and further psychometric studies are being conducted on the

revised instrument. Content validity and usefulness of the instrument were established by a group of career education program evaluators. The instrument has been revised over a four-year period.

7. *Availability:* The *Student Opinion Survey* and processing services can be obtained from RBS.

I. PARENT OPINION SURVEY (POS)

1. *Rationale/Objectives of Instrument:* This instrument is designed to measure opinions and attitudes of the parents of students enrolled in career education programs similar to RBS Career Education.

2. *Content and Organization:* The instrument contains 13 items incorporating a five-point interval scale and includes two open-ended items. The items assess attitudes toward various program elements, opinions on program benefits and comparisons of the program relative to standard curricular offerings. The instrument is presented in a four-page (8½ x 5½) booklet.

3. *Administration Procedures:* The method of survey administration will depend upon the local context. This, in turn, will influence, to a large extent, the rate of response. In most cases, the surveys have been mailed to parents with a pre-paid return envelope. A cover letter indicating the purpose of the survey and the return deadline and emphasizing the importance of responses should be included in such a mailing. It may be desirable to follow up unreturned surveys by telephone. Alternatives to mailing include administering the instrument at a parent-teacher meeting or sending the surveys home with students. All methods have advantages and disadvantages; factors such as cost, required effort and rate of response should be weighed. Administration time is approximately 10 minutes.

4. *Scoring Procedures:* The Parent Opinion Survey must be scored by hand. Response category frequencies and percentages for individual items are most appropriate. Item means also may be helpful. An overall instrument score is not appropriate. Open-ended responses can be listed verbatim (eliminating personal references), and categorization schema for summarizing and reporting responses can be devised.

5. *Scoring Interpretation and Use:* Item means close to five indicate a strong positive rating; a mean close to one indicates a strong negative rating. Frequency distributions of response categories as well as item means should be examined to obtain further descriptions of general parent

opinion. Rate of response should be examined to determine the generalizability of results. A special consideration in reviewing POS results is that parents may not feel that they have enough information about the career education program to rate its quality and/or effects. This view may be reflected in a low rate of response or a high number of responses in category "3". Such a finding would indicate the need for a parent orientation program and a system of information dissemination. Other feedback from the POS can assist in future program planning efforts.

6. *Psychometric Qualities:* Psychometric analyses of previous versions of the POS indicate a high degree of internal consistency (KR-20 of .93) and homogeneity of factors. Based on these analyses, several items have been deleted and further psychometric studies are being conducted on the revised instrument. High degrees of reliability and construct validity are expected, as was the case with previous versions of the POS. Content validity and usefulness of the instrument were established by a group of career education program evaluators. The instrument has been revised over a four-year period.

7. *Availability:* The *Parent Opinion Survey* and processing services are available from RBS.

J. COMMUNITY PARTICIPANT OPINION SURVEY (CPOS)

1. *Rationale/Objectives of the Instrument:* This instrument is designed to measure community participant opinions concerning educational programs similar to RBS Career Education.

2. *Content and Organization:* The instrument contains 13 items incorporating a five-point interval scale and includes two open-ended items. The items assess attitudes towards various program elements, opinions on program benefits and comparisons of the program relative to standard curricular offerings. The instrument is presented in a four-page (8½ x 5½) booklet.

3. *Administration Procedures:* Administration has been most successful when the project field representative delivers the survey to community site respondents and collects it upon its completion. This approach assures a high response rate. Another method has been to mail surveys to community participants and include a pre-paid return envelope. In this case a follow-up by telephone often is necessary. Administration time is approximately 10 minutes.

4. *Scoring Procedures:* The *Community Participant Opinion Survey* must be scored by hand. Response category frequencies and percentages for individual items are most appropriate. Item means also may be helpful. An overall instrument score is not appropriate. Open-ended responses can be listed verbatim (eliminating personal references), and categorization schema for summarizing and reporting responses can be devised.

5. *Scoring Interpretation and Use:* Item means close to five indicate a strong positive rating; a mean close to one indicates a strong negative rating. Frequency distributions of response categories as well as item means should be examined for further description of general community participant opinion. Negative results can alert program staff to possible resource site dissatisfaction, while positive results can be very helpful in gaining support of other community agencies.

6. *Psychometric Qualities:* No formal study of psychometric qualities has been conducted. Content validity has been established through reviews by career education program evaluators and staff members.

7. *Availability:* The *Community Participant Opinion Survey* and processing services can be obtained from RBS.

INTERRELATIONSHIPS AMONG INSTRUMENTS

The figures presented below represent the intercorrelations among the instruments discussed in this guide.* These statistics were calculated in order to provide further information which may be helpful in the instrument selection process. The figures show that the instruments measure relatively independent phenomena. The correlations among tests are fairly low; the relationships among subtests within instruments are generally higher.

Instruments	1	2	3	4	5	6	7	8	9
1. SAS – Learning Environments	1.00								
2. SAS – Careers	.19								
3. SAS – Self-Concept	.31	.43							
4. SAS – Others-Concept	.21	.32	.51						
5. CTBS – Reading Comprehension	-.11	-.18	-.20	-.29					
6. CTBS – Arithmetic Concepts	-.06	-.08	-.15	-.20	.35				
7. CTBS – Arithmetic Applications	-.08	-.01	-.06	-.19	.28	.70			
8. CMI – Career Knowledge	-.04	-.24	-.23	-.34	.49	.44	.41		
9. CMI – Career Planning	.06	-.17	-.23	-.29	.41	.49	.42	.61	1.00

N = 201

*The ACD has not been included in these relational analyses to date.

SUMMARY OF INSTRUMENTS AND SERVICES AVAILABILITY

	Instruments	Scoring	Manuals, Etc.
A. SDQ	RBS	RBS	RBS
B. CMI	CTB	CTB or RBS	CTB
C. SDII	RBS	RBS	CPP
D. ACD	HM	HM	HM
E. ASA	RBS	RBS	RBS
F. SAS	RBS	RBS	RBS
G. CTBS	CTB	CTB or RBS	CTB
H. SOS	RBS	RBS	RBS
I. POS	RBS	RBS	RBS
J. CPOS	RBS	RBS	RBS

RBS – Evaluation Services
Research for Better Schools, Inc.
1700 Market Street, Suite 1700
Philadelphia, Pennsylvania 19103

CTB – CTB/McGraw-Hill
Order Service Center
Del Monte Research Park
Monterey, California 93940

CPP – Consulting Psychologists Press
577 College Avenue
Palo Alto, California 94306

HM – Houghton Mifflin
Regional Sales Office
Pennington – Hopewell Rd.
Hopewell, New Jersey 08525

CONCLUDING NOTES

The selection of appropriate instruments to match program objectives is a crucial step in the development of an evaluation plan. Factors such as instrument content, administration time and procedures, form and utility of scores and psychometric qualities should be considered carefully. This guide has discussed these factors specifically in relation to instruments which are recommended for consideration in the evaluation of career education programs.

A computer-linked scoring service is available through RBS Evaluation Services for each instrument described in the guide. This service produces standard 80-column keypunched computer cards for users interested in performing their own data analyses. Printed profiles can also be prepared. Individual profiles can be generated for each student, listing student scores for every instrument used and the position of the student relative to local or national norms. Group profiles summarize results across students and provide average scores or rankings and standard deviations for each instrument. Additional services can be tailored to the needs of users; technical assistance in all aspects of the evaluation of career education programs is available. Research for Better Schools, Inc. can provide further information on the availability of instruments and services discussed in this guide.

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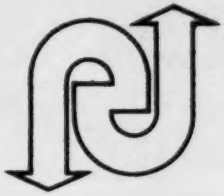

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